

IN THE CLAIMS

1. (Original) A method for transporting gas, comprising:
dissolving the gas in an emulsion comprising a fluorinated hydrocarbon, a
surfactant and an aqueous electrolyte with a pH of at most 4 or at least 9; and
contacting the emulsion with an electrode.

2-19. (Cancelled)

20. (Original) A composition for delivering gas and ions to an electrode,
comprising:
an emulsion comprising:
a fluorinated hydrocarbon;
a surfactant; and
an aqueous electrolyte with a pH of at most 4 or at least 9.

21. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the aqueous electrolyte has a pH of at most 3.

22. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the aqueous electrolyte has a pH of at most 1.

23. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the aqueous electrolyte comprises a member selected from the group consisting of:
 H_2SO_4 , HNO_3 , HClO_4 , H_3PO_3 , H_3PO_4 , HCl , HBr , HCl , $\text{CH}_3\text{CO}_2\text{H}$, $\text{CCl}_3\text{CO}_2\text{H}$, $\text{CF}_3\text{CO}_2\text{H}$,
and mixtures thereof.

24. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the electrolyte comprises an aqueous solution of H_2SO_4 .

25. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the aqueous electrolyte has a pH of at most 10.

26. (Currently amended) The composition fuel cell of claim 20 39, wherein: the aqueous electrolyte comprises a member selected from the group consisting of: LiOH, NaOH, KOH, Rb(OH), CsOH, Mg(OH)₂, Ca(OH)₂, Sr(OH)₂, and Ba(OH)₂, and mixtures thereof.

27. (Currently amended) The composition fuel cell of claim 20 39, wherein: the fluorinated solvent is selected from the group consisting of:
 $(C_nF_{2n+1})Si(OCH_3)_3$; $(C_nF_{2n+1})_2Si(OCH_3)_2$; $(C_nF_{2n+1})CH_2OC(O)CH_3$; $CF_3[OCF_2CF_2]_nOCF_3$;
 $CF_3[OCF_2CF_2]_nOCF_2Cl$; $CF_3[OCF_2CF_2]_nOCF_2Br$; $CF_3[OCF_2CF_2]_nCF_2H$;
 $CF_3[OCF_2CF_2]_nF$; $CF_3[OCF_2CF_2]_nCl$; $CF_3[OCF_2CF_2]_nBr$; $CF_3[OCF_2CF_2]_nH$;
 $CF_3CF_2[OCF_2CF_2]_nF$; $CF_3CF_2[OCF_2CF_2]_nCl$; $CF_3CF_2[OCF_2CF_2]_nBr$;
 $CF_3CF_2[OCF_2CF_2]_nH$; $CF_3CHF[OCF_2CF_2]_nF$; $CF_3CHF[OCF_2CF_2]_nCl$;
 $CF_3CHF[OCF_2CF_2]_nBr$; $CF_3CHF[OCF_2CF_2]_nH$; $CF_3CHF[OCF_2CF(CF_3)]_nF$;
 $(CF_3)_2CF(CF_2)_nF$; $(CF_3)_2CF(CF_2)_nCl$; $(CF_3)_2CFO(CF_2)_nBr$; $(CF_3)_2CFO(CF_2)_nH$;
 $(CF_3)_2CFO(CF_2)_nF$; $(CF_3)_2CFO(CF_2)_nCl$; $(CF_3)_2CFO(CF_2)_nBr$; $(CF_3)_2CFO(CF_2)_nH$;
 C_nF_{2n+2} ; $CF_3(CF_2)_nCl$; $CF_3(CF_2)_nHCF_3(CF_2)_nBr$; $N(C_nF_{2n+1})_3$ wherein n is 1 to 20; $C_6F_mH_{6-m}$;
 $C_6F_mCl_{6-m}$; $C_6F_mBr_{6-m}$; $C_6F_m(CF_3)_{6-m}$, wherein m is 1 to 6; and mixtures thereof;
wherein n is 1 to 20; and
wherein m is 1 to 6.

28. (Currently amended) The composition fuel cell of claim 20 39, wherein: the fluorinated solvent is selected from the group consisting of: $CF_3(CF_2)_7Br$;
 $(CF_3)_2CF(CF_2)_4Cl$; $(CF_3)_2CFO(CF_2)_6F$; perfluorobutyltetrahydrofuran;
perfluoropropyltetrahydropyran; C_8F_{18} ; $CF_3CFBrCF_2Br$; $(CF_3)_2CF(CF_2)_4Br$;
 $[(CF_3)_2CFOCF_2CF_2]_2$; C_9F_{20} ; C_6F_6 ; $CF_3CHF[OCF_2CF(CF_3)]_3F$; $(CF_3)_2CF(CF_2)_6Cl$; $C_{10}F_{16}$;
 $CF_3CHF[OCF_2CF(CF_3)]_4F$; perfluorotetrahydrodicyclopentadiene; $[(CF_3)_2CFO(CF_2)_4]_2$;
perfluorodecalin; $CF_3CHF[OCF_2CF(CF_3)]_5F$; perfluorodimethyladamantane; $N(C_4F_9)_3$;
perfluoromethyldecalin; $C_6H_4(CF_3)_2$; and $CF_3CHF[OCF_2CF(CF_3)]_9F$; and mixtures thereof.

29. (Currently amended) The composition fuel cell of claim 20 39, wherein: the fluorinated solvent is perfluorodecaline.

30. (Currently amended) The composition fuel cell of claim 20 39, wherein: the surfactant is selected from the group consisting of: $F(CF_2CF_2)_y(CH_2CH_2O)_xH$, wherein y is 1 to 10, and x is 0 to 25; $((F(CF_2CF_2)_yCH_2CH_2)_xP(O)(ONH_4)_y$, wherein x is 1 or 2, y is 1 or 2, x+y is 3, and z is 1 to 8; $F(CF_2CF_2)_xCH_2CH_2SCH_2CH_2CO_2Li$, wherein x is 1 to 10; $F(CF_2CF_2)_xCH_2CH_2SO_3Y$, wherein x is 1 to 10, and Y is H or NH_4^+ or NH_4^+ ; and mixtures thereof.

31. (Currently amended) The composition fuel cell of claim 20 39, wherein: the surfactant is a mixture of $CF_3(CF_2)_5CH_2CH_2SO_3H$ and $CF_3(CF_2)_5CH_2CH_2SO_3NH_4$.

32. (Currently amended) The composition fuel cell of claim 20 39, wherein: the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 1:24 to 24:1.

33. (Currently amended) The composition fuel cell of claim 20 39, wherein: the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 3:24 to 12:24.

34. (Currently amended) The composition fuel cell of claim 20 39, wherein: the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 1:6 to 5:7.

35. (Currently amended) The composition fuel cell of claim 20 39, wherein: the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 2:9 to 4:9.

36. (Currently amended) The composition fuel cell of claim 20 39, wherein: the amount of surfactant in the emulsion is from 0.07% to 3% of the total weight of the emulsion.

37. (Currently amended) The composition fuel cell of claim 20 39, wherein: the amount of surfactant in the emulsion is from 0.125% to 2% of the total weight of the emulsion.

38. (Currently amended) The composition fuel cell of claim 20 39, wherein:
the amount of surfactant in the emulsion is from 0.5% to 1% of the total weight of the emulsion.

39. (Currently amended) A fuel cell for the generation of electricity, comprising:

- a) an anode;
- b) a cathode; and
- c) a composition in contact with at least one of the anode and the cathode

comprising: an emulsion comprising a fluorinated solvent, a surfactant and an aqueous electrolyte with a pH of at most 4 or at least 9.

40. (Currently amended) The fuel cell of claim 39, wherein: the fuel cell is a fuel cell wherein the cathode and the anode are separated by a membrane.

41. (Currently amended) The fuel cell of claim 39, wherein: the anode and the cathode are separated by a channel contiguous with at least a portion of each electrode; such that when a first liquid is contacted with the anode, a second liquid is contacted with the cathode, and the first and the second liquids flow through the channel, a parallel laminar flow is established between in the first and the second liquids.

42. (Currently amended) The fuel cell of claim 39, wherein: the composition in contact with the anode further comprises a fuel.

43. (Currently amended) The fuel cell of claim 39, wherein: the composition in contact with the cathode further comprises oxygen.

44. (Currently amended) In a fuel cell comprising: a) an anode; and b) a cathode; the improvement comprising:

transporting a gas to at least one of the anode and the cathode by: dissolving the gas in an emulsion comprising a fluorinated solvent, a surfactant and an aqueous electrolyte with a pH of at most 4 or at least 9; and

contacting the emulsion with at least one of the anode and the cathode.